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10/691,319	10/22/2003	Philip D. Nguyen	2003-IP-010380U1	5926
71407	7590	04/09/2008	EXAMINER	
ROBERT A. KENT P.O. BOX 1431 DUNCAN, OK 73536			TSOY, ELENA	
			ART UNIT	PAPER NUMBER
			1792	
			NOTIFICATION DATE	DELIVERY MODE
			04/09/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/691,319	<b>Applicant(s)</b> NGUYEN ET AL.	
	<b>Examiner</b> Elena Tsoy	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-32 and 34-77 is/are pending in the application.
- 4a) Of the above claim(s) 20-24, 27, 30, 37-41, 44, 47, 50-64 and 67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18, 19, 25, 26, 28, 29, 31, 32, 34-36, 42, 43, 45, 46, 48, 49, 65, 66 and 68-77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/13/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Amendment***

Amendment filed on February 1, 2008 has been entered. Claims 18-32, and 34-77 are pending in the application. Claims 28-29 rejoined for examination since they depend now on elected species. Claims 20-24, 27, 30, 37-41, 44, 47, 50-64, and 67 are withdrawn from consideration as directed to a non-elected species.

***Claim Objections***

Objection to claims 43, 74 because of the informalities has been withdrawn due to amendment.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Rejection claim 34 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn due to amendment.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 35-36, 42, 45-46, 48-49, 68-73, 75, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al (US 20020048676) in view of Sielcken et al (US 5585524).
3. Claims 18-19, 25, 28-29, 31-32, 34, and 65-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al in view of Sielcken et al, further in view of Martin et al (US 4,969,523).
4. Claims 35-36, 45, 49, 68-70, 72, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 4,493,875) in view of in view of Sielcken et al.
5. Claims 18-19, 25, 28-29, 31-32, 34, 65-66, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al in view of Sielcken et al, further in view of Martin et al, and further in view of Nguyen et al (US 5908073).
6. Claims 42, 46, 73, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al in view of Sielcken et al, as applied above, and further in view of McDaniel et al for the same reasons of record as set forth in paragraph 5 of the Office Action mailed on 1/18/2007.
7. Claims 26, 43, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al in view of Sielcken et al in view of Martin et al/McDaniel et al in view of Sielcken et al in view of Martin et al in view of Nguyen et al/McDaniel et al in view of Sielcken et al/ Beck et al in view of Sielcken et al/Beck et al in view of Sielcken et al in view of McDaniel et al/, as applied above, and further in view of Murphey et al (US 4665988) for the reasons of record set forth in paragraph 8 of the Office Action mailed on 1/18/2007.

***Response to Arguments***

8. Applicant's arguments filed February 1, 2008 have been fully considered but they are not persuasive.

**V. Remarks Regarding Rejections Under 35 U.S.C. § 103(a)**

**A. Claims 35, 36, 42, 45, 46, 48, 49, 68-73, 75 and 76**

Claims 35, 36, 42, 45, 46, 48, 49, 68-73, 75 and 76 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over McDaniel et al in view of Sielcken et al

(A) Applicants argue that instead of "adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate," the low density filler material taught in McDaniel is combined with a binder to form a low-density composite particulate. See McDaniel at [0053]. This composite particulate may then be coated with a resin. See McDaniel at [0059].

The Examiner respectfully disagrees with this argument. In contrast to Applicants argument, McDaniel **expressly** teaches that *one or more filler* materials, as well as the *resin* and optional cement, are selected such that the composite particle has a desired bulk density (See P57). For example, a composite particle may comprise *a low density filler material* (such as ground walnut shells) **together with** *a higher density filler material* (such as finely divided silica), **and** *a binder* of polymer resin and cement, so long as the respective amounts of these ingredients results in a composite particle having the desired low density (See P57).

(B) Applicants argue that McDaniel fails to teach providing a coated particulate substrate and adhering a density-reducing material onto the surface of the coated particulate, or that a density-reducing material may be adhered on-the-fly. Nor does Sielcken teach or render obvious the missing elements. The Office Action states that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a mixing process of McDaniel et al continuously with the expectation of providing the desired composite particles since it is within the level of ordinary skill in the art to operate a process continuously." (Office Action at 5). The Office Action cites In re Dilnot case in support of this assertion. Respectfully, this case does not support the Examiner's conclusion in this case. The subject of In re Dilnot was a claim directed to a method of producing a cementitious structure wherein a stable air foam was introduced into a slurry of cementitious material. The court held the claimed

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continuous operation would have been obvious in light of the batch process of the prior art. First, unlike Applicants' invention, the claim at issue differed from the prior art only in requiring the addition of the foam to be continuous. Second, a continuous process is not necessarily an "on-the-fly" process as claimed by Applicants and defined in Applicants' Specification. Third, even if Applicants' claims were to be construed as a continuous process as described in *In re Dilnot*, McDaniel still fails to obviate Applicants' claims. Even if the process of McDaniel were to be performed in a continuous manner, it would not produce the particles claimed by Applicants because nowhere does McDaniel teach "adhering [a] density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate," as recited in independent claims 35 and 68.

The Examiner respectfully disagrees with this argument. The court held the claimed continuous operation would have been obvious in light of the batch process of the prior art. Since mixing is a **mechanical** process, not chemical, it is irrelevant what particular components are to be mixed. Therefore, it is irrelevant whether a process uses foam or any other materials. As long as a process can be carried out in batch it could be carried out continuously.

(C) Applicants argue that since the subject of Sielcken is a method for the preparation of an aldehyde, it does not apply to on-the-fly methods for adhering density-reducing materials onto a surface of a coated particulate for use in a subterranean formation, as there are substantial differences in structure and function of Applicants' invention and the invention of Sielcken. MPEP § 2141.01(a). Furthermore, the "tubular reactor" taught by Sielcken is not analogous to the on-the-fly method of Applicants' claims.

The Examiner respectfully disagrees with this argument. Sielcken teaches that if components can be mixed in a batchwise process, they may be mixed in a stirred tank reactor or a tubular reactor. Since mixing is a **mechanical** process, not chemical, it is irrelevant what particular components are to be mixed.

(D) The Office Action states that McDaniel fails to teach "that the mineral particles are added to a binder stream before the low density fillers such that the low density fillers are adhered to a binder coated mineral particles." (Office Action at 5 (emphasis in original)). Despite this missing teaching, the Office Action states that: [I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a process of the cited prior art by adding mineral particles to a binder stream before the low density fillers, with the expectation of providing the desired composite particles, since it is well settled that selection

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of any order of mixing ingredients or selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results in prima facie obvious, and McDaniel et al do not limit their teaching to a particular order of mixing ingredients. Id. Applicants respectfully submit that McDaniel provides no suggestion of such a modification. As stated in the Office Action, McDaniel teaches that the composite particles may comprise low density fillers and/or minerals bound together with a binder material. No selection of the order

The Examiner respectfully disagrees with this argument. As was discussed in the Office Action, it is well settled that selection of any order of mixing ingredients or *selection of any order* of performing process steps is prima facie obvious in the absence of new or unexpected results is prima facie obvious. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a process of the cited prior art by adding mineral particles to a binder stream *before* the low density fillers, with the expectation of providing the desired composite particles, since it is well settled that selection of any order of mixing ingredients or selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results is prima facie obvious, and McDaniel et al do not limit their teaching to a particular order of mixing ingredients.

Since Applicants did not present new or unexpected results of claimed order, Applicants failed to overcome the rejection.

**B. Claims 18, 19, 25, 28, 29, 31-32, 34, 65, and 66**

Claims 18, 19, 25, 28, 29, 31-32, 34, 65, and 66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over McDaniel in view of Sielcken, further in view of U.S. Patent No. 4,969,523 issued to Martin et al. (hereinafter "Martin").

McDaniel fails to teach or suggest at least "providing at least one coated particulate comprising a coating material and a particulate material" and "adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced- density, coated particulate," as recited in independent claim 18. Further, as discussed in Section V(A) above, Sielcken fails to teach the missing elements, nor does the combination of McDaniel and Sielcken render obvious the missing elements. Martin also fails to teach or render obvious the missing elements, as it does not teach or render obvious adhering polystyrene divinylbenzene (or

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any density reducing material) to the surface of a coated particulate, much less doing so on-the-fly. Rather, the Examiner has merely relied on Martin for its alleged teaching of the use of polystyrene divinylbenzene as a density reducing material. Therefore, independent claim 18 is not obviated by McDaniel in view of Sielcken further in view of Martin.

As to over McDaniel in view of Sielcken, the Examiner disagrees with this argument for the reasons discussed above. As to Martin, it is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination.

### C. Claims 35, 36, 45, 49, 68-70, 72, and 75

Claims 35, 36, 45, 49, 68-70, 72, and 75 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,493,875 issued to Beck et al. (hereinafter "Beck") in view of Sielcken.

Beck does not teach "adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate," as recited in independent claims 35 and 68. Rather, as the Office Action states, Beck teaches coating a proppant by the steps of: (1) mixing the core particles with adhesive to provide adhesive-coated core particles, (2) while the adhesive is still tacky, mixing the coated core particles with hollow microparticles to adhere a plurality of the microparticles to each coated core, and (3) curing each adhesive composition to a nontacky state ***while keeping the individual coated core particles substantially out of adherent contact with each other***. See col. 2, line 61 - col. 3, line 8 (emphasis added). To keep the individual coated core particles substantially out of adherent contact with each other, Beck teaches that the core particles may be tumbled in an excess of hollow microparticles. See col. 3, lines 10-14. Such a requirement teaches away from an on-the-fly process. MPEP § 2141.02. The argument that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a process of Beck by adding mineral materials to a binder stream before the low density fillers is nonsensical, as Beck does not teach mineral materials, binder streams, or low density fillers. The Examiner appears to have confused Beck with the alleged teachings of McDaniel. Regardless, as similarly discussed above in Section V(A) with respect to McDaniel, no selection of the order of the steps in Beck would result in the particles described in Applicants' claims, as Beck does not disclose "adhering [a] density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate," regardless of any order in which the steps in Beck are performed.

Applicants are correct. It was an inadvertent error. It should read: "It would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a process of Beck et al continuously in a tubular reactor (**claimed on-the-fly mixing**) since



Sielcken et al teach that a process that can be carried out in a stirred reactor as batchwise process may be carried out as a *continuous* process using a stirred tank reactor or a tubular reactor.

The Examiner respectfully disagrees with this argument. The “while keeping the individual coated core particles substantially out of adherent contact with each other” requirement would not teach away from an on-the-fly process because the on-the-fly process can also be carried out in excess of hollow microparticles.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy, Ph.D.  
Primary Examiner  
Art Unit 1792

April 7, 2008

/Elena Tsoy /

Primary Examiner, Art Unit 1792

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